

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
3 February 2005 (03.02.2005)

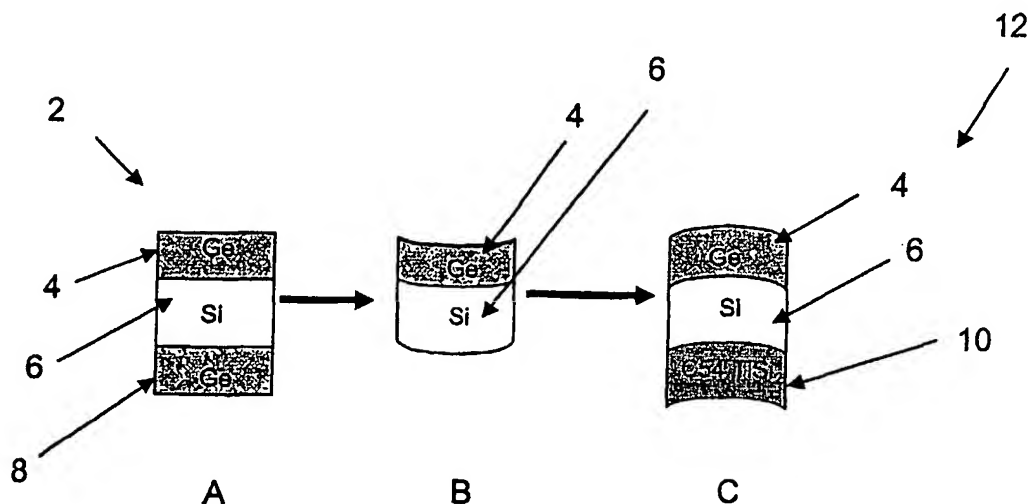
PCT

(10) International Publication Number  
**WO 2005/010965 A3**

- (51) International Patent Classification<sup>7</sup>: **H01L 21/20;** (74) Agents: BELOBORODOV, Mark, L. et al.; Goodwin Procter LLP, Exchange Place, Boston, MA 02109 (US).  
C30B 25/18
- (21) International Application Number: PCT/US2004/024747
- (22) International Filing Date: 29 July 2004 (29.07.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:  
60/491,378 31 July 2003 (31.07.2003) US
- (71) Applicant (for all designated States except US): MASSACHUSETTS INSTITUTE OF TECHNOLOGY [US/US]; 77 Massachusetts Avenue, Cambridge, MA 02139 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): LIU, Jifeng [CN/US]; 6 Bedford Street, Apt. 1R, Somerville, MA 02143 (US). CANNON, Douglas, D. [US/US]; 21 Calvin Street, Apr. 3, Somerville, MA 02143 (US). WADA, Kazumi [JP/US]; 23 Hill Street, Lexington, MA 02421 (US). JONGTHANMANURAK, Samerkhea [US/TH]; Vipavadee 42 Road, Bangkok, Thailand 10900 (TH). DANNIELSON, David, T. [US/US]; 265 Elm Street, Apt. 3, Somerville, MA (US). MICHEL, Jurgén [DE/US]; 500 Summer Street, Arlington, MA 02474 (US). KIMERLING, Lionel, C. [US/US]; 369 Strawberry Hill Road, Concord, MA 01742 (US).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:  
— with international search report  
— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments
- (88) Date of publication of the international search report:  
26 May 2005

[Continued on next page]

(54) Title: METHOD AND STRUCTURE OF STRAIN CONTROL OF SiGe BASED PHOTODETECTORS AND MODULATORS



(57) Abstract: A SiGe or Ge structure comprises a substrate and a SiGe or Ge layer that is formed on a first surface of the substrate. A silicidation or germanide layer is formed on a second surface of the substrate so to increase the tensile strain of the SiGe or Ge layer on the first surface.



---

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*